

ABSTRACT

Problem: In a semiconductor device having a multilayer structure comprising an insulating film, an adjacent conductive film, and a main conductive film, to provide a highly reliable semiconductor device in which defects in the multilayer structure such as adhesive fracture and cracks are difficult to occur. Further, to provide a highly reliable semiconductor device in which voids and disconnections due to migration are difficult to occur.

Solving Means: The lattice mismatching between a main constituent element of an adjacent conductive film and a main constituent element of a main conductive film is made small, the melting point of the main constituent element of the adjacent conductive film is set to be not less than 1.4 times that of the main constituent element of the main conductive film, the adjacent conductive film contains at least one different kind of element in addition to the main constituent element, the difference between the atomic radius of at least one kind of added element among the different kinds of elements and the atomic radius of the main constituent element of the adjacent conductive film is set to be not more than 10%, and the bond energy between the added element and silicon (Si) is set to be not less than 1.9 times that of the main constituent element of the adjacent conductive film and silicon (Si).